

Date: Thu, 18 Feb 93 17:08:20 PST  
From: Info-Hams Mailing List and Newsgroup <info-hams@ucsd.edu>  
Errors-To: Info-Hams-Errors@UCSD.Edu  
Reply-To: Info-Hams@UCSD.Edu  
Precedence: Bulk  
Subject: Info-Hams Digest V93 #231  
To: Info-Hams

Info-Hams Digest                      Thu, 18 Feb 93                      Volume 93 : Issue    231

Today's Topics:

Converter circuit ban is unenforcable  
Delivery Failure Report  
Ground  
Morse Code Processor  
RF and Power Supply

Sales tax on mail order?From: bryan.weaver@bville.gts.org (Bryan Weaver)  
Weekly Solar Terrestrial Forecast & Review - 19-28 Feb  
Yaesu FT530 VOX mic?

Send Replies or notes for publication to: <Info-Hams@UCSD.Edu>  
Send subscription requests to: <Info-Hams-REQUEST@UCSD.Edu>  
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Info-Hams Digest are available  
(by FTP only) from UCSD.Edu in directory "mailarchives/info-hams".

We trust that readers are intelligent enough to realize that all text  
herein consists of personal comments and does not represent the official  
policies or positions of any party. Your mileage may vary. So there.

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Date: 19 Feb 93 00:50:12 GMT  
From: news-mail-gateway@ucsd.edu  
Subject: Converter circuit ban is unenforcable  
To: info-hams@ucsd.edu

I can sell my homebrew 10 Meter amplifier only because the rules specifically  
allow this. We (will now) need the same dispensation for receiving equipment.

--

Ed Schaefer    K9JMA

But also check out 97.135(a). You can't make more than one of these a  
year! In fact you can't make more than one linear that works below  
144Mhz in a year even if you don't sell it. A curious rule!

Does anyone know what 2.815 says about PA kits?

73

Kevin Purcell N7WIM / G8UDP

a-kevinp@microsoft.com

"We conjure the spirits of the computer with our spells"

-----  
Date: 19 Feb 93 00:53:28 GMT  
From: news-mail-gateway@ucsd.edu  
Subject: Delivery Failure Report  
To: info-hams@ucsd.edu

From: NAME: Mail Postmaster

FUNC:

TEL:

<POSTMASTER AT NEWPRTA1 at DOHENY at

TUS>

To: "Info-Hams@UCSD.Edu"@DECWRL@MRGATE

ALL-IN-1 was unable to deliver your message dated to

"green.richard"

- no such ALL-IN-1 account;

on node NEWPRT

The subject of the message was :

Info-Hams Digest V93 #221

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Date: 19 Feb 93 00:10:55 GMT  
From: news-mail-gateway@ucsd.edu  
Subject: Ground  
To: info-hams@ucsd.edu

Jon Bloom says:

In that case, you may want to inhibit the induced current by winding the coax into a coil just before it enters the house. This is easy and effective. Use 6-8 turns of coax, typically, made from 8-10 feet of coax.

I say:

An aside to this is that these air-cored baluns (for that is what it is) are only effective at 14Mhz (or so) and above. There is not enough

inductance in the winding to kill of the RF on the outside of the braid at the low bands. For that you need some ferrite/powdered iron beads.

Unfortunately I can't remember where I read about this! An ARRL publication (Reflections or Transmission Line Transformers or Antenna Book).

72

Kevin Purcell N7WIM / G8UDP

a-kevinp@microsoft.com

"We conjure the spirits of the computer with our spells"

-----  
Date: 19 Feb 1993 00:39:34 GMT  
From: sdd.hp.com!elroy.jpl.nasa.gov!elroy.jpl.nasa.gov!news@network.UCSD.EDU  
Subject: Morse Code Processor  
To: info-hams@ucsd.edu

In article <1993Feb16.063744.28333@news.columbia.edu> Harry Y Xu, hyx1@cunib.cc.columbia.edu writes:

> I'm thinking about building a "Morse Code Processor" for my  
> Microprocessor Lab class.  
> The machine is expected to receive CW (not limited to machine  
> generated) from the radio and display the characters on a 16x1 (or 16x2)  
> LCD display. It also transmits and displays character inputs from a  
> keyboard. It's just a thought.  
> Has anyone ever heard of such a machine in existence?  
> ....

Most TNC (Terminal Node Controller, that's what they're called. They also call it a Packet Controller) can do it: sending and receiving Morse (by taking inputs from a keyboard, translate them and send them out thru the radio; and decode/display incoming Morse to the monitor screen). It sits between a ham radio and the computer. Beside encode/decode Morse, it does radio packet using AX.25 protocol. It's pretty inexpensive, cost about \$75-\$80 brand new.

== minh ==

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Date: 19 Feb 93 00:39:56 GMT  
From: news-mail-gateway@ucsd.edu  
Subject: RF and Power Supply  
To: info-hams@ucsd.edu

Scott Renfro, km6hd says:

2. Break the ground loop by isolating your power supply (or radio, or ???) from the household electrical ground using a '3 prong to 2 prong' adaptor.

Since this equipment is already grounded to your ground system (see 1. above) it is safe but opens the problem loop.

I say:

Hmmm, killing yourself to kill an earth loop. Good trade off, eh!

NEVER do this.

Flame on:

I know US wiring is wimpy, with silly little connectors with optional earth connections and there non-fused and you have lots of weird products that have large exposed metal parts but only use two pin connectors, and your electric kettle have cables as thick as a 25 year old oak tree, because they half the voltage from the UK, well 120v will kill you as quick as 240v .... <wheeze, pant, foam>

Flame off :-)

The transition in the other direction is amusing too "God this is an amazing plug. Is it three phase?" is the typical American response to the standard UK plug.

I've done its a lot setting up science experiments at synchrotrons -- trying to measure picoamps in an industrial environment!) you have to remove the loops. Only for the most sensitive measurements would we consider earth isolating a piece of equipment. I stopped doing it after I got zapped by a defective Keithley current to voltage convertor.

To solve earth loops you must remove the loop or break it either at DC or RF.

Most loops (including a lot of the good hifi "hum loops") involve a lousy power and signal cable layout.

Connect everything (thats electrically connected) to the same outlet. This assumes the outlet is good for the power, which may not be the case for a linear. In which case get a 220v outlet installed.

Use a distribution board with a good earth to get all the power connections at the same point. The power should fan away from one point. Units should not be daisy chained.

Minimise the area of the loops by running all the wiring in close

proximity to each other or to a ground plane.

Install a copper ground plane (the best for stubborn problems). If your cables run across the top of it the area of the loops they form is zero and you get no pickup. Large ground planes also have a very low inductance hence they can be very effective at killing VHF/UHF loop problems. The ground plane should have a good earth connection at the same point as the power cables.

Put "braid breakers" in the cables. These are cables in which the ground connection is broken in the lead (but they remain fully shielded if made from coax). This breaks the loop and doesn't compromise the safety of the equipment. DO NOT "BRAID BREAK" SAFETY EARTHS.

If you have a RF problem you can add virtual "braid breaker" -- but adding something that will increase the inductance of the cable. This is the usual technique of solving RFI problems by wrapping power and signal cables around ferrite/powdered iron cores or using split cores. Can be very effective if you choose the correct material (lossy at the frequency of interest).

I have tried all of these techniques, and they all work!

Alternativley you could try QRP :-)

72

Kevin Purcell N7WIM / G8UDP

a-kevinp@microsoft.com

"We conjure the spirits of the computer with our spells"

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Date: Thu, 18 Feb 1993 22:20:24 GMT

From: news.acns.nwu.edu!casbah.acns.nwu.edu!lapin@network.UCSD.EDU

Subject: Sales tax on mail order?From: bryan.weaver@bville.gts.org (Bryan Weaver)

To: info-hams@ucsd.edu

In article <8942.946.uupcb@bville.gts.org> bryan.weaver@bville.gts.org (Bryan Weaver) writes:

>Newsgroups: rec.radio.amateur.misc

>

>CS.>I don't believe this is true. California charges sales tax

> .>on mail orders, whether the outfit is in California or not.

> .>I believe California won a court case on this recently. Anyone have

> .>newer info?

>

>The US Supreme court rules back in the mid '60's (US vs BELLA HESS)

...stuff deleted

>Recently CA and other states have tried to re-argue that case and  
...more stuff deleted

>Strictly speaking, the buyer is probably supposed to voluntarily pay  
>their state the tax! \*<gg>\*

Illinois is one of those states. When I order by mail from AES in Wisconsin (only ham radio stuff in this discussion! :-)) I am not charged IL Sales Tax since AES has no store in IL. However, along with the income tax forms, the state sends a new form for the "USE" tax that is supposed to be for things bought out of state that are used in state. A fancy name for an illegal tax, IMO.

Greg Lapin KD9AZ

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Date: 19 Feb 93 00:33:31 GMT  
From: news-mail-gateway@ucsd.edu  
Subject: Weekly Solar Terrestrial Forecast & Review - 19-28 Feb  
To: info-hams@ucsd.edu

--- SOLAR TERRESTRIAL FORECAST AND REVIEW ---  
February 19 to February 28, 1993

Report Released by Solar Terrestrial Dispatch  
P.O. Box 357, Stirling, Alberta, Canada  
T0K 2E0  
Accessible BBS System: (403) 756-3008

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IMPORTANT NOTICE : The weekly report for next week (due to be released on 25 February) will not be released. Equipment is being moved which will prevent the report from being compiled. Daily reports will also be unavailable from about 20 Feb through to 26 or 27 February, as will all alerts, and warnings issued by the STD.

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For information regarding our Dynamic Auroral Oval Simulator and its importance in aiding to determining propagation conditions, send a request for more information to:  
Oler@Rho.Uleth.CA, or Coler@Solar.Stanford.Edu

Our Spring Special is now in effect for this software and will remain active until 31 May, 1993.

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## SOLAR AND GEOPHYSICAL ACTIVITY FORECASTS AT A GLANCE

### 10-DAY SOLAR/RADIO/MAGNETIC/AURORAL ACTIVITY OUTLOOK

	Solar Activity	HF Propagation						+/- CON	SID PROB. Es				AU.BKSR DX				Mag	Aurora			
		LO	MI	HI	PO	SWF	%MUF	%	ENH	LO	MI	HI	LO	MI	HI	%	K	Ap	LO	MI	HI
--	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
19	LOW-MOD	VG	G	F	F	40	-10	70	25	NA	NA	NA	01	10	20	35	3	15	NV	NV	LO
20	LOW-MOD	G	F	P	P	30	-20	60	25	NA	NA	NA	05	35	40	30	5	30	NV	MO	MO
21	LOW-MOD	G	G	P	P	25	-15	65	25	NA	NA	NA	03	30	35	30	4	20	NV	LO	MO
22	LOW-MOD	VG	G	F	F	25	-05	65	20	NA	NA	NA	02	25	30	30	3	12	NV	NV	LO
23	LOW-MOD	VG	G	F	F	25	00	65	20	NA	NA	NA	02	20	25	35	3	12	NV	NV	LO
24	LOW-MOD	VG	G	F	F	30	+05	65	25	NA	NA	NA	02	20	25	35	2	10	NV	NV	LO
25	LOW-MOD	VG	G	F	F	30	+05	65	25	NA	NA	NA	02	20	25	35	2	10	NV	NV	LO
26	LOW-MOD	VG	G	F	F	30	+05	65	25	NA	NA	NA	02	20	25	35	3	12	NV	NV	LO
27	LOW-MOD	VG	G	P	F	30	00	65	25	NA	NA	NA	03	25	30	30	3	15	NV	NV	MO
28	LOW-MOD	VG	G	P	P	30	-05	65	25	NA	NA	NA	03	25	30	30	4	20	NV	LO	MO

#### DEFINITIONS:

Date (day only)

Possible Magnitude of Solar Flaring (LOW=C-class, MOD=M-class, HIGH=M or X)

HF Propagation Conditions for Low, Middle, High, and Polar areas (see below)

HF Short Wave Fade Probability (in %)

HF Maximum Usable Frequency in +/- percent above seasonal normals.

HF Prediction CONFidence Level (in %)

VHF Sudden Ionospheric ENHancement Probs (in %), weighted for low-mid lats

PROBability of "s"poradic E (Es) during the UT day for low, mid and high lats

VHF AUroral BackScatteR Probs (in %) for Low, Middle and High Latitudes

VHF Overall Global DX Potential (in %) - weighted for Low and Middle latitudes

Geomagnetic Activity Kp Index (peak value - see below)

GeoMAGnetic Activity Ap Index (peak value - see below)

AURORAL Activity for Low, Middle and High Latitudes (see below)

HF Prop. Quality rated as: EG=Extremely Good, VG=Very Good, G=Good, F=Fair,  
P=Poor, VP=Very Poor, EP=Extremely Poor.

Probability of Sporadic E (Es) for the various latitudes is given in percent.

Kp Planetary Index rated: 0=V.Quiet, 1=Quiet, 2=Unstld, 3=Active, 4=V.Active,  
5=Minor Storm, 6=Major Storm, 7=Maj-Sev Storm, 8=Severe Storm, 9=V.Severe.

Ap Planetary Index rated: 0-7=Quiet, 8-16=Unstld, 17-29=Active,  
30-49=Minor Storm, 50-99=Major Storm, Severe Storm >=100.

Auroral Activity rated: NV=Not Visible, LO=Low, MO=Moderate, HI=High,  
VH=Very High.

# PEAK PLANETARY 10-DAY GEOMAGNETIC ACTIVITY OUTLOOK (19 FEB - 28 FEB)

EXTREMELY SEVERE												HIGH
VERY SEVERE STORM												HIGH
SEVERE STORM												MODERATE
MAJOR STORM												LOW - MOD.
MINOR STORM		*										LOW
VERY ACTIVE	*	***	**								*	NONE
ACTIVE	***	***	***	**	*	*	*	*	**	***		NONE
UNSETTLED	***	***	***	***	***	***	***	***	***	***		NONE
QUIET	***	***	***	***	***	***	***	***	***	***		NONE
VERY QUIET	***	***	***	***	***	***	***	***	***	***		NONE
-----												
Geomagnetic Field	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun		Anomaly
Conditions	Given in 8-hour UT intervals											Intensity

CONFIDENCE LEVEL: 65%

## NOTES:

Predicted geomagnetic activity is based heavily on recurrent phenomena. Transient energetic solar events cannot be predicted reliably over periods in excess of several days. Hence, there may be some deviations from the predictions due to the unpredictable transient solar component.

## 60-DAY GRAPHICAL ANALYSIS OF GEOMAGNETIC ACTIVITY

54										J		
51										J		
49										J		
46										J		
43										J		
40		M								J		
38		M								J		
35		M								J		M
32		M								J	M	M
30		M								J	M	M
27		AM		A						J	M	M
24		AM		A						J	M	M
22		AM	AA	A						JA	M	M
19		AM	AA	A			A			JA	MA	M
16		AM	AAA	A	AA		AA			JA	AMA	M
13		AM	AAAU	A	UAA	A	U	AA		JAU	AMAUU	M
11	UU	AM	AAAUUA	UAA	AU	U	U	AA		JAU	AMAUUU	M
8	UU	AMUU	AAAUUAUUAAUUUU	U	UU		UAAU	UJAUUU		AMAUUUU		M
5	UUUUU	AMUUUAAAAUUAAUUUUUUUUQ					UAAUU	UJAUUUU		AMAUUUU		UM



3 |UUUUUQQQAMUUUAAAAUUUUAAUUUUUUUUUUQQQUAAUUQUJAUUUUQAMAUUUUQQUM|

Chart Start Date: Day #355

NOTES:

This graph is determined by plotting the greater of either the planetary A-index or the Boulder A-index. Graph lines are labelled according to the severity of the activity which occurred on each day. The left-hand column represents the associated A-Index for that day.

Q = Quiet, U = Unsettled, A = Active, M = Minor Storm, J = Major Storm, and S = Severe Storm.

CUMULATIVE GRAPHICAL CHART OF THE 10.7 CM SOLAR RADIO FLUX

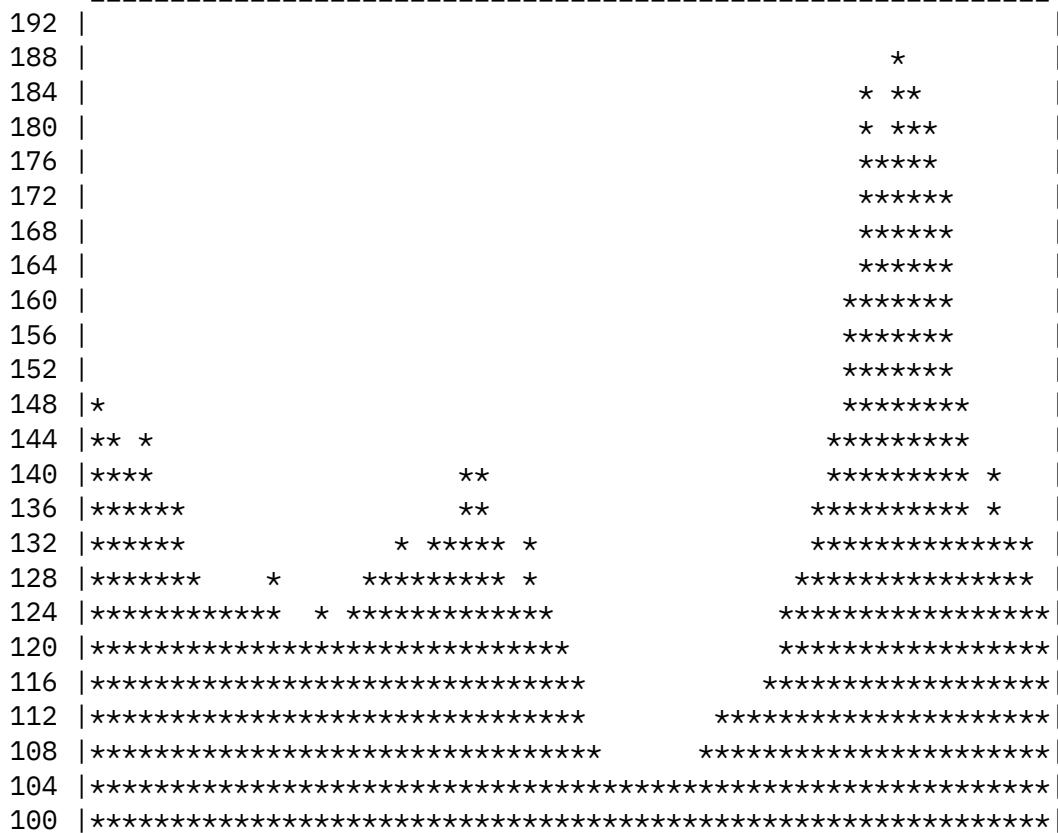


Chart Start: Day #355

GRAPHICAL ANALYSIS OF 90-DAY AVERAGE SOLAR FLUX

```

143 |
142 |          ****
141 |          ****
140 |          *          ****
139 |          ****          ****
138 |          ****          ****
137 |          ****          ****
136 |          ****          ****
135 |          ****
134 |          ****
-----

```

Chart Start: Day #355

#### NOTES:

The 10.7 cm solar radio flux is plotted from data reported by the Penticton Radio Observatory (formerly the ARO from Ottawa). High solar flux levels denote higher levels of activity and a greater number of sunspot groups on the Sun. The 90-day mean solar flux graph is charted from the 90-day mean of the 10.7 cm solar radio flux.

#### CUMULATIVE GRAPHICAL CHART OF SUNSPOT NUMBERS

```

-----
197 |
190 |          *
183 |          *  *
176 |          ****
169 |          ****
162 |          *          ****
155 |          *          ****
148 | *    *          *          ****
141 | *    *          *  *  *          ****
134 | **   *          *  ****          ****
127 | **  *  **          ****          ****
120 | ****          ****          **** *
113 | ****          ****          **** *
106 | ****          ****          **** *
099 | ****          ****          ****
092 | ****          ****          *  *          ****
085 | ****          ****          ****          ****
078 | ****          ****          ****          ****
071 | ****          ****          **          ****
064 | ****          ****          **  *  *          ****
057 | ****          ****          ****          ****
050 | ****          ****          ****          ****

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043 |\*\*\*\*\*|

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Chart Start: Day #355

NOTES:

The graphical chart of sunspot numbers is created from the daily sunspot number counts as reported by the SESC.

HF RADIO SIGNAL PROPAGATION PREDICTIONS (19 FEB - 28 FEB)

SPECIAL SUPPLEMENTARY SUPPORT FOR THE UPCOMING HF RADIO CONTEST  
-----

Propagation conditions for the weekend of 20 and 21 February are uncertain. A major solar flare that erupted on 17 February may prove to be geoeffective on 20 February. There is uncertainty regarding the possible arrival of this disturbance given that the flare originated from a location near the west limb. If a disturbance arrives, it is expected to produce poor to very poor propagation conditions over the high and polar latitude paths. Middle and low latitude paths should fair better, with near-normal propagation during the day and slightly below normal propagation (increased signal instabilities) during the local night sectors. The disturbance should begin to subside late on 20 February or on 21 February. If this disturbance fails to arrive, conditions should remain near-normal throughout the weekend. Sporadic high and polar latitude substorming could occasionally degrade paths crossing these regions during the local night sectors.

High Latitude Paths

CONFIDENCE LEVEL ----- 60%	EXTREMELY GOOD												
	VERY GOOD												
	GOOD												
	FAIR	*		*	**	***	***	***	***	***	***	**	
	POOR	* *	**	* *	*							*	
	VERY POOR		*										
	EXTREMELY POOR												
	-----		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
	PROPAGATION		Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	
	QUALITY		Given in 8 Local-Hour Intervals										

Middle Latitude Paths  
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[illegible]

## AURORAL ACTIVITY PREDICTIONS (19 FEB - 28 FEB)

CONFIDENCE LEVEL	EXTREMELY HIGH														
	VERY HIGH														
	HIGH														
	MODERATE	**	***	**	*							*	*		
65%	LOW	***	***	***	***	***	***	***	***	***	***	***	***	***	***
	NOT VISIBLE	***	***	***	***	***	***	***	***	***	***	***	***	***	***
	-----	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	AURORAL	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun				
	INTENSITY	Eve.Twilight/Midnight/Morn.Twilight													

	EXTREMELY HIGH											
CONFIDENCE LEVEL	VERY HIGH											
-----	HIGH											
65%	MODERATE											
	LOW	**	**	*							*	*
	NOT VISIBLE	***	***	***	***	***	***	***	***	***	***	***
	-----	--	--	--	--	--	--	--	--	--	--	--
	AURORAL INTENSITY	Fri Eve.	Sat Twilight	Sun Midnight	Mon Morn.	Tue Twilight	Wed Midnight	Thu Morn.	Fri Twilight	Sat Midnight	Sun Morn.	

EXTREMELY HIGH

CONFIDENCE	VERY HIGH												
LEVEL	HIGH												
-----	MODERATE												
75%	LOW												
	NOT VISIBLE	***	***	***	***	***	***	***	***	***	***	***	***
	-----	---	---	---	---	---	---	---	---	---	---	---	---
	AURORAL	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun		
	INTENSITY	Eve.Twilight/Midnight/Morn.Twilight											
	-----												

#### NOTE:

A Dynamic Auroral Oval Simulation and Prediction Software Package is available to help make predictions and show the locations where auroral activity should be visible from the ground. For more information regarding this software, contact: "Oler@Rho.Uleth.CA", or "COler@Solar.Stanford.Edu".

For more information regarding these charts, send a request for the document, "Understanding Solar Terrestrial Reports" to: "Oler@Rho.Uleth.Ca" or to: "COler@Solar.Stanford.Edu". This document, as well as others and related data/forecasts exist on the STD BBS at: (403) 756-3008.

\*\* End of Report \*\*

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Date: 18 Feb 93 23:54:56 GMT  
From: usc!hela.iti.org!cs.widener.edu!dsinc!ub!acsu.buffalo.edu!  
miskines@network.UCSD.EDU  
Subject: Yaesu FT530 VOX mic?  
To: info-hams@ucsd.edu

A friend has recently purchased a nice little dual bander.. and sees that among other things, there is a VOX headset available for it..

He has no real use for a headset, but would like to produce some form of vox mic. Could some kind fellow perhaps provide a schem incorporating a commonly-available electret condenser mic element do do this?

Thanks..  
Robert j Miskines  
miskines@acsu.buffalo.edu

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End of Info-Hams Digest V93 #231

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